ALEX MASTER SPEED LIST		4/25/1980	11: 59: 49	PAGE 1
DEFINED	FUNCTION		ACCEPTABLE MARGINA	AL SLOW
elitri epue epue elitre estre ettre ettre estre	os ant ans stat dan die	er en an av en en av se av av av av av av av av		11 MI IN 110 MI AN AN AN AN 215 MI 121 MI
	CAL FUNCTIONS) TO MAKE SURE THE SI CIMAL MODE FOR STAT.	
17. 4	SIGMA+	2ND SIGMA+	X	se alle and alle and and and and alle and alle and
17. 5	SIGMA-	INV 2ND SIGMA+	· X	en dille duck dags della man layar (1775 ping layar (1875) page
18. 82	CLR STAT	OP 22	X	
18. 85	LIN REGR	OP 23	X	to the pull tip the and the time the time and the are the
18.88	MEANS	OP 26	X	op dels gave stage titles date dipe title agai read collis atten man
??. ??	STD ERR MEAN	INV OP 26	X	
18. 91	SAM STD DEV	OP 27	X	
18. 93	POP STD DEV	INV OP 27	X	
18. 95	CORR COEF	OP 24	X	
18. 98	Y' =	OP 25	Х	
18. 100	X′ =	INV OP 25	X	
"MATH" FL	JNCTIONS			
COMP COMP COMP STATE AND STATE WATER STATE COMP COMP COMP COMP COMP COMP COMP COMP	1			
17. 71	PI	PI SYMBOL	X	
	SIGNUM	INV OP 28	X	12 to 100 100 110 110 110 110 110 110 110 11
17. 19	FACTORIAL	2ND ()!	X	10 and 500 and 500 500 400 400 400 400 400
17. 18	INVERSE	() -1	X	gas able, gade dated affile pass dated table dated cases differ exten
	S@ ROOT	2ND ROOT SIGN	X	
17. 35	INT POWER	()N	X	
17. 38	LOG X	2ND LOG	X	
17. 39	ANTILOG X	INV 2ND LOG	X	
	LN X	2ND LN	X	

INV 2ND LN

UP ARROW

X

X

17. 42

17. 37

E**X

RAISE POWER

ALEX MAST	TER SPEED LIST	4/2	5/1980	11: 59: 49		PAGE	2
DEFINED	FUNCTION	KEYS	TROKES	ACCEPTABLE	MARGINAL	SLOW	
17. 40	END SUPERSCRIPT	DOWN	ARROW	x			
17. 59	DIVISION	DIV		× **** **** **** **** **** **** **** *	and the thirt are enter the the the thirt are	AND HIS OWN SING SING AND SING ON	• •••
17. 70	MULTIPLY	Х	Mile gale that the mad own here even each ga	X			
18. 51	EXECUTE IMPLIED	MULT	IPLY	X	ener case divis den case divis seen com com seen	odari eller anna anna esse stara anna ann	
17. 83	SUBTRACTION		teles admin apple velets annel annen veren, unico como ceren an	X	uid and 445 and 640 446 and and 446 and		
17. 96	ADDITION	+	ating agent annua talan sakad anyai kiray ambar kasai darin an	X	alan bagai elirin daga maga elikh daga opun vilin daga	THE PERSON ASSESS ASSESS ASSESS ASSESS ASSESS ASSESSED	
17. 114	EQUALS	=======================================	1944 <i>19</i> 50 1950 1950 1950 1950 1950 1950 1950 19	X	annua gatepo effera passa cappo diren- andus appen abrila appun	pages deaths spaces copyel avails space assets	
17. 97	cos	2ND (cos	X	anna baad diirin annin vaan diirin vaga anna dirin anga		
17. 98	ARCCOS	INV 2	2ND COS	X	1950 STATE STATE STATE STATE STATE STATE STATE STATE	aques antito acces taque atota queca acces atot	
17. 115	SIN	2ND 9		X	agusa souna stilda angus souna 1960a piacri Souna alber anula	aren follo quel anen diota estar esco fisca	
17. 116	ARCSIN		2ND SIN	X			
17. 84	TAN	2ND		x	and was sink map been dirk and men till enk		
17. 85	ARCTAN		2ND TAN	X		•	
17. 68	ABS VALUE		3		X		
17. 110	UNARY MINUS		I	X			
17. 111	SIGN CHANGE	INV	I – I	X			•
CONVERSIO	DNS ===						* 400M
17. 7	P>R	2ND F	P>R	X			
17. 8	R>P	INV 2	2ND P>R	X			
17. 51	ENG UNITS	2ND E	ENG	X			
17. 52	CLEAR ENG	INV :	2ND ENG	X			
17. 49	ENTER EXPONENT	EE		X			
17. 50	CLEAR EE	INV	EE	Х			
17. 54	FIX DEC PT	2ND	FIX		X		ti asea
17. 55	CLEAR FIX	INV	2ND FIX		X		
17. 57	DISPLAY INTEGER	2ND	INT	X			

ALEX MAS	TER SPEED LIST	4/25/1980	11: 59: 49		PAGE	3
DEFINED	FUNCTION	KEYSTROKES	ACCEPTABLE	MARGINAL	SLOW	
	=	## ## ## ## ## ## ## ## ## ## ## ## ##	2 2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	## ## ## ## ## ## ## ## ## ##	: 20: up #1 12: up #1 20 1	
17. 58	DISPLAY FRACT	INV 2ND INT	X	anne como cirio que rena nove prem esta cirio aten		
17. 81	DMS TO DEC DEG			X	. een 1840 soon man 1840 aan aan 1	
17. 82	DEC DEG TO DMS		and also allo allo and and the dup dept delt dap dust allo	X	a argus willin auron engañ silitiñ auvez ausas en	***
18. 28	OCTAL MODE OPER	ATION	X			the east
18. 32	DECIMAL MODE OP	ERATION	X			No obser
18. 48	HEX MODE OPERAT		X	and the life are the the are the same and	a decada additira decada artigas decidina decidina securia securia and	
18. 55	DEG> RAD	OP 18		X		No oten
18. 57	RAD> DEG	INV OP 18	The code that with more maps boths aren that this come and police.	X		H19 42-48
18. 59	RAD> GRAD	OP 19		X		No 4000
18. 61	GRAD> RAD	INV OP 19	ventre engan engan selling aasem gange beleen engan selling selling selling selling selling selling selling selling	X		les agrico
18. 63	GRAD> DEG	OP 20	elles agen unque mines artes anque calma caque casas elemb casas cando tendo	X		
18. 65	DEG> GRAD	INV OP 20	ichia alaka alaga difto galas caapa siito atuun eessa eesta agaa eessa siinb	X	. Garan dilinia descri deglar attata agelar decum de	M3 40450
18. 113	UNNORMALIZED #	OP 41	THE STATE STATE STATE SALES CALLS STATE STATE COLES STATE STATE STATE STATE STATE	X		-
18. 115	RESTORE NORMAL#	INV OP 41		X		
17. 60	TRIG ANGLE MODE		andia aguja kandi antig usun agun amin aguja daga daga dhini asga asga amin	X	a danga dalam estata estata dalam estata abaya da	tre 1440
17. 61	DEGREE MODE	INV 2ND DRG	data quae piede coma atem demo billa coma cepa tillas super cepa diffe	X	. 0,000 00000 00000 00000 00000 00000 00	
PROGRAMM:	ING MODES					
17. 1	EQUATION MODE	EQN	X	AND LINE ONE OF SELECTION TO SELECTION AND	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0	who essee
17. 3	EVALUATE EGN	EVAL	X	and the day and high alone and high three shad	Dayle where cases wages offers cases where the	100 44090
17. 2	LEARN MODE	LRN	X	and only the one one the same one of		M- 40-00
17. 62	SINGLE STEP		X	was need once made visid this dark book offer stand	ages come untre capp their rists found to	dan
17. 63	CURSOR RIGHT	ALPH>	X		angun ellem ellem kann band ellem ellem ellem el	
17. 72	BACK STEP	<	X			ON STATE
17. 73	CURSOR LEFT	ALPH <	X		a courte celetta puerta dilipira princira dilipira celebra del	*** 400
		tions entitle device ember either stage desire exists exten annus annus exists annus annus				

ALEX MAS	TER SPEED LIST	4/25/1980	11: 59: 49		PAGE
DEFINED	FUNCTION	KEYSTROKES	ACCEPTABLE	MARGINAL	SLOW
17. 64	INSERT	2ND INS		x	10 0000 (0166 (1010) litpus (unice costin angles augus dan
17. 74	DELETE	2ND DEL	stant com who does heap him engl color date date date date	X	P 6000 6005 step tore title alles steel title all
17. 31	SUBROUTINE	SBR	X		an anga atawa pama anga sanan anga anga anga anga
17. 32	RETURN	INV SBR	x		
17. 33	LABELED SBR	2ND LBL SBR	X		to these course pends accord divide games cause dates end
17. 34	LABEL	2ND LBL	X	parts carry artis and made their again stans story and	to aqual collic goods and collic goods agus collic col
17. 45	GO ТО	GTO	X	action again stiffed neutro access stiffed nation stages attitude access	to their after each race title each reach fittle and
17. 46	GO TO LABEL	GTO 2ND LBL	X	place house notes come crear after areas engin with and	in adapt office areas active party square service servi
17. 47	GO FORWARD REL	2ND GFR	Х	anne anne anne anne anne anne anne anne	O CARRO CARRO ALARO ARRES ARRES ARRES ARRES CARRO CARRO
17. 48	GO BACKWARD REL	INV 2ND GFR	X	AND THAT O'E AND THAT THE COME THAT AND THE	O COMPON PORTICO ACRESTO RECEIVO COMMON ACRESTO REPUBBI RECEIVO
17. 65	INDIRECT FIELD	2ND IND	X		a dayan talkiy adaal dayan alkan assan assan talkin dar
17. 75	IF >	2ND IF >	X	etern etern cities winds augus artists cours sever artists and	D COLOR TITLE COLOR BASIN STITLE COLOR MACENTA COLOR
17. 76	IF <	INV 2ND IF >	X		10 capps cares serve teleto (1940 seleto cape) alletto cap
17. 77	IF >=	2NDIF> 2NDIF=	X		
17. 78	IF <=	INV2NDIF>2NDIF	= X	COTO CALLO C	n angle aller proce come telle aren came telle ce
17. 79	IF =	2ND IF =	X .		
17. 80	IF NOT =	INV 2ND IF =	X		
17. 86	RUN/STOP	R/S	X		
17. 88	RESET	2ND RST			X
17. 89	FLIP FLAG	INV 2ND RST FF	X		
17. 90	IF FLAG	2ND IFF	X		
17. 91	INV IF FLAG	INV 2ND IFF	X		
17. 92	SET FLAG	2ND STF	X		
17. 93	INV SET FLAG	INV 2ND STF	Х		
17. 94	DECR & SKIP O	2ND DSZ	X		
17. 95	INV DSZ	INV 2ND DSZ	Х		
17. 112	PAUSE	2ND PAU	X		

ALEX MAST	ER SPEED LIST	4/25/1980	11: 59: 49		PAGE	5
	FUNCTION					
17. 11			x	an na 449 pp au an ma an an an an		
(MAY BE G	NOT AVAILABLE OF	RAM)				
	SET BIT		X		econ sella como muso tello aspei eresa teles	-
RBIT	RESET BIT	CODE A1	X			1997
FBIT	FLIP BIT	CODE A2	X			
	TEST BIT	CODE A3	X			-
INV TBIT	TST&SKIP IF SET	INV CODE A3	X			
STOD	STO A DIGIT	CODE A4	x			****
RCLD	RECALL A DIGIT		X			
HIER	SET HIER REGIS.		X			
	RESET TO USER R	EGISTERS	X			·
	INDIR HIER REG		x			
INV INDH	RESET IND HIER		x			
RCLH	RECALL HIER REG		Х			
STOH	STORE HIER REG	CODE A9	X		ANDER SENTE COOK COOK SENTE SENTE SENTE	s esses
MEMORY	·		,			
17. 6	SWAP DISP-AUX	near spec anno som desp eller gene dept dille onto mega film dille dille	X	gains cause verse come cours come come crime come	and eliter from any time and cost time	e etern
17. 9	INCREMENT REG	OP A-Z	ann una sup ante esté aux aux este sain suit suit suit suit suit suit suit suit	X		
17. 10	DECREMENT REG	INV OP A-Z	100g spire enga eller men enga eller eller tilba tilba däre ente eller eller eller eller eller eller eller elle	X		
17. 15	DEFINE VAR	2ND DFN RCL V	adia gala asan daka selah kum asan man dalah dalah dalah dalah kum 4946 . , ,	X		
17. 20	STORE	STO	X			
17. 21	CLR MEMORIES	2ND CMS		. X		

			11:59:49		PAGE	
DEFINED	FUNCTION	KEYSTROKES	ACCEPTABLE	MARGINAL	SLOW	
17. 22	CLR PROGRAM	INV 2ND CMS	and map deri and nece cost with this pust com desir aces.		X	S a.c.
 17. 23	RECALL	RCL	X	edictor designs official parcels species addition contact begans official court	o valen ellitti engga digun onlik dagan dagan en	
17. 25	STORE +	STO +	X			N e
17. 26	STORE -	STO -	X		t copie allata dell'in della allata allata alla casa est	
17. 27	STORE X	STO X	X	anne deput filits crist entre filits crist entre sector deput filits cour	a como militro grano arago chiera agran amazo dal	
17. 28	STORE /		X	and their strict case often over alle deem after and	a contro austro angue angue annos aguas angua an	* ***
17. 29	EXCHANGE		X	MAN AND TOOL SAN ALLS MAN SON THAT MAN	anno ester quan band estera anno senor reli	•
17. 99	CLEAR ENTRY		X		· eggs 45% gags rook 45% aug aug aug	* ****
17. 100	CLR EQUATION	2ND CEG	X	and white the state of the stat	. Bench neller enter social nelle nelle auch social nel	
17. 101	GENERAL CLEAR		X	union telepi adelep edelen daleka pitteri edelen telepi telebi adelep	CANCO COTTO CANCO CONTA COTTO ASSER PRINCIPO COTTO	•
17. 102	LST PGM MEMORY	2ND LST	X	aceda elledi eller yazılı dazılı leller çazılı laşıyı eller çazılı		-
17. 104	LST REGISTERS	INV 2ND LST	coup date with each take with each tape fitth other four With	X		• ••••
17. 105	LST HIER CONT	HIER INV 2ND L	ST	X	45 45 40	
PERIPHERA	ALS		ST		400 400 400	
PERIPHERA	ALS === PROGRAM	PGM MMNN		x		
PERIPHERA 17. 13	ALS === PROGRAM PRINT DISPLAY	PGM MMNN 2ND PRT		X		
PERIPHERA 17. 13 17. 108	PROGRAM PRINT DISPLAY ADVANCE PAPER	PGM MMNN 2ND PRT INV 2ND PRT		X		
PERIPHERA 17. 13 17. 108 17. 109	PROGRAM PRINT DISPLAY ADVANCE PAPER DOWNL CRAM/CROM	PGM MMNN 2ND PRT INV 2ND PRT 2ND READ	X	X		
PERIPHERA 17. 13 17. 108 17. 109	PROGRAM PRINT DISPLAY ADVANCE PAPER	PGM MMNN 2ND PRT INV 2ND PRT 2ND READ		X X		
PERIPHERA 17. 13 17. 108 17. 109	PROGRAM PRINT DISPLAY ADVANCE PAPER DOWNL CRAM/CROM WRITE TO CRAM	PGM MMNN 2ND PRT INV 2ND PRT 2ND READ		X		
PERIPHERA 17. 13 17. 108 17. 109 17. 66 17. 67	PROGRAM PRINT DISPLAY ADVANCE PAPER DOWNL CRAM/CROM WRITE TO CRAM	PGM MMNN 2ND PRT INV 2ND PRT 2ND READ INV 2ND READ		X		
PERIPHERA 17. 13 17. 108 17. 109 17. 66 17. 67 MISCELLAN 17. 12 17. 30	PROGRAM PRINT DISPLAY ADVANCE PAPER DOWNL CRAM/CROM WRITE TO CRAM	PGM MMNN 2ND PRT INV 2ND PRT 2ND READ INV 2ND READ 2ND INV	X X	X		

ALEX MAST	ER SPEED LIST	4/25/1980	11:59:49		PAGE	7
DEFINED	FUNCTION	KEYSTROKES	ACCEPTABLE MA	ARGINAL	SLOW	
				ii 15 as ii 15 as ai 16 s	II	=
17. 16	DEFINE OP	2ND DFN OP NN		X	nga anta gang anna anta anta anga anga a	***************************************
17. 17	DEFINE INV OP	2ND DFN INV OP	NN	X	001 10010 augu augu 40010 augu augu augu au	
17. 24	RECALL DATE	INV TIME DATE	aller finite plan dann tillen dager synn eller gelen dager sin dager sin	X	gel (16th dist) anns 16th agus 1954 1864 18	as even este este even este aven
17. 118	ON/TIME/PROMPT		atin dan 1966 atan anal 1966 apin agai 1976 atan agai agai 1966 apin 1966 a	X	94 - 1960 - 1960 - 1960 - 1960 - 1960 - 1960	
17. 43	ALPHA STATE 1	ALPH	x	into acces destr corris arces destr destr acces an	pe elle este elle stes pen sup ten e	
17. 44	ALPHA STATE 2	2ND ALPH	×		nos derro guago basso dende apada bassas estada an	
17. 113	ALPHA SHIFT	SHIFT KEY ALPH	X	life dags ones filips distributed above state as-es es-	tay dilito antiti augus tillita ducit suyat häkaa ab	
17. 117	FORMAT ALPH #	ALPHA	X	unde destas estate estate secto acuta fette qui	100 COLOR CO	
17. 53	LEFT PAREN	(X	this come cape and conce pape about more ou	and delice section course habited excelle descript believe and	ar vion 1981, man 1984 1986
17. 56	RIGHT PAREN	>	x			
17. 106	NUMERALS	0-9	X			
17. 107	DECIMAL PT		x	, (20) (20) (20) (20) (20)		

DEFINE OP CODES

	OP DEFINITIONS		X
	SET DEFAULTS		X
	ERROR MESSAGE#	DFN OP 2	X
	MEM PARTITION		X
18. 14	DEFAULT PART.		X
18. 16	ALL CUE PROMPT		x
18. 19	YES/NO CUE	DFN OP 5	X
	ENT/CONT CUE		X
18. 25	CONT CUE		X
	OCTAL MODE		X
	RECALL ALPHA		X

ALEX MAST	ER SPEED LIST	4/25/1980	11: 59: 49	PAGE 8
DEFINED	FUNCTION	KEYSTROKES	ACCEPTABLE MARGINAL	scow
18. 31	RECALL ALPHA	DFN INV OP 9	х	The see of the see she see use use
18. 33	DECIMAL MODE		X	na diap 1604 gilar diga terik gain diga dipik gara
18. 36	PRIMARY MODULE#	DFN OP 11	X	in that with allow ratio riding plate regal lating years
??. ??	ANGLE MODE:	DFN OP 12	X	T TO THE THE COST COST COST COST COST
	ROUND DISPLAY	DFN OP 13	X	- 100 110 100 100 100 100 100 100 100
	SAVE STATUS	DFN OP 14	X	On Hajid States engige annual agram angus annua annua
	EXCHANGE STATUS	DFN INV OP 14		T COLOR TOTAL CASE TOTAL STOP SOLES FROM SOME
	->SHIFT ALPHA->	DFN OP 15	X	
	<-SHIFT ALPHA<-	DFN INV OP 1		
	HEX MODE	DFN OP 16	X	
	IMPLIED MULT	DFN OP 17	X	
	DEACTIVAT I.M.	DFN INV OP 1	7 X	
18. 56	D->R CONVERSION	DFN OP 18	X	
18. 58	R->D CONVERSION	DFN INV OP 18		
18. 60	R->G CONVERSION		X	
18. 62	G->R CONVERSION	DFN INV OP 1	7 X	
18. 64	G->D CONVERSION	DFN OP 20	X	
18. 66	D->G CONVERSION	DFN INV OP 20	o x	an emaja salaha apata magaa salaha elejah elejah diseba dasah
18. 154	SELF TEST 1	DFN OP 21	X	
18. 154	SELF TEST 2	DFN INV OP 2:	1 X	,
18. 83	CLR STATISTICS		X	
18. 86	INTERCEPT-SLOPE	DFN OP 23	X	
18. 96	CORRELAT. COEFF		X	
18. 99	Y = MX + B	DFN OP 25	X -	
18. 101	X = (Y-B)/M	DFN INV OP 2	5 X	
18. 89	XBAR =	DFN OP 26	X	
??. ??	STD ERR MEAN	DFN INV OP 2		

ALEX M	ASTER SPEED LIST	4/2	25/1980		11: 59: 49		PAGE
DEFINE	D FUNCTION	KEY	STROKES		ACCEPTABLE	MARGINAL	SLOW
18. 92	SAMPLE ST DEV	DFN	OP 27			x	:
18. 94	POPUL ST DEV	DFN	INV OP		annel total ^{estit} ic color tours (filtr again visus estits again m _{ake} o	X	angah dahibi agasa angah dahas agasa acasar admis agas
17. 68	ABSOLUTE VAL	DFN	OP 28		and the color of t	***	
17. 69	SIGNUM FUNCT	DFN	INV OP		apper compo filoria asesso glases tillrice glasty compo estita epaza asesso til	X	
18. 111	SHOW FLAGS SET	DFN			والمن وا	X	teren efters appea conse errer etter etter eners eners eners ester :
18. 79	24 HOUR TIME	DFN			anno form diffic align came diffic displication flavo sittle autor spap to	X	tices differ capes dates plans parts value come ager
18.81	12 HOUR TIME	DFN	INV OP	30	ente depe late ente depe date desp des elle elle elle des	X	
18. 68	PAUSE TIMING	DFN	OP 31		garan saman dirina danda danga eliking pintan apada dirina pintan anaga bil	X	rando efficio augum angua terba annua dagua angua angua
18. 70	DEFAULT PAUSE	DFN	INV OP	31	apara tamah dinen amapa dinap elitik adam tagah dilate amap enggi di	x	nggo tilin anni enga ettiv anna egad ettiv ann
18. 103	LST PGM LABELS	DFN	OP 32		allen derin talle edan dese solle derin dese delle allen talle delle	X	ingga stillio antina ensari Pillino apala deceri divisso meri
233333	No after 1930 After allow allow after afte	DFN	OP 33		NOTE: OP 3	3 NO LONGER	EXISTS
18. 141	RD CASS MAIN/MOD	DFN	OP 34		anna union union diven ausan enten dilan balan etilan enten etilan etilan etilan etilan etilan etilan etilan e	X	
18. 143	WR CASS MAIN/MOD	DFN	INV OP	34	acces alongs differ clause expel billion service accept differs plant expell til	X	and water state and author and desire and an
18. 146	RD CASS PGM STEPS	DFN	OP 35		enad appa (data cap) enan ellen ellen allen allen allen ann ellen ann enad el	X	
18. 148	WR CASS PGM STEPS	DFN	INV OP	35	gana diapo dinin, peres angus enemp dinina dinina della all'ani apap di	X	and while data must state above from some size
18. 151	RD CASS REGISTERS	DFN	OP 36		ame caso stan gun page anna cate vapa ente ante agan at	X	
18. 153	WR CASS REGISTERS	DFN	INV OP	36	anne rigino vilira essajo astajo provio ejeno estajo niviro antali estajo vi	X	the season area come come come come come
18. 118	DISP->PGM CNTR	DFN	OP 37		alarin dalah 1994 dalah salah barah barah dalah barah 1994 dalah dalah dalah 1994	X	
18. 120	PGM CNTR->DISP	DFN	INV OP	37	(COL 1020) COLD (COLD COLD (COLD COLD COLD COLD COLD COLD COLD COLD	X	
18. 122	DISP->PGM STEP	DFN	OP 38		and	X	
18. 124	PGM STEP->DISP	DFN	INV OP	38		X	
18. 126	PGM STEP<->DISP INC	C PC	DFN OF	39		X	
18. 128	PGM STEP<->DISP DEC	C PC	DFNINV)P39		X	
18. 131	SOFT PARTITION	DFN	OP 40			X	
18. 132	HARD PARTITION	DFN	INV OP	40		X	
18. 114	UNNORMALIZED #	DFN	OP 41		pages tagger timbs deeps appea armin miles about 200,0 come tonic 1000 1000 in	X	
18. 116	CANCEL UNNORM#	DFN	INV OP	41		X	

ALEX MAS	TER SPEED LIST	4/25/1980	11: 59: 49	PAGE 10
DEFINED	FUNCTION	KEYSTROKES	ACCEPTABLE MARGINAL	SLOW
??. ???	I/O BUFFER->I/O	DFN OP 42	x	
??. ???	I/O->I/O BUFFER	DFN INV OP 42	X	NO CALLIER COMPON GENERA COMPON MATERIA CALLIER CALLIER CALLIER
??. ???	SHOW 13 DIGITS	DFN OP 43	X	e same state code code state about about about acon codes acon
18. 134	SET ALARM	DFN OP 44	X	O AGUN ANDO COMO COMO SENSO AGUN AGUN AGUN AGUN
18. 136	RESET ALARM	DFN INV OP 44	X	o conti tette alun conti etta anp cara tett ann
18. 138	PAU TIMING TONE	DFN OP 45	X	o tron state sales most talke sales sales valve sales
??. ???	ERROR TONE	DFN OP 46	X	
??. ???	CUE TONE		X	O eases Office assum makes Office assum major stories access
??. ???	NO CUE TONE		X	n dagab telir pasan kanga telira anaga maga antan panag
18. 72	COPY CRAM	DFN OP 48	X	n agus antha angu atum atum agust agus ajiny ayan
18. 75	NAME CRAM	DFN OP 49	X	n euro estito escan magar eletro eletr elegy elitro essas
18. 77	ERASE MODULE	DFN INV OP 49	X	a algud attila yanin sissa ainan ainan ainan ainan
18. 106 E	ELIMINATE PC DISP	DFN OP 50	X	angus atthis annu annus attris grans annus atthis annis
18. 108	RESTORE PC DISP	DFN INV OP 50	X	a agus Caller anns anns Albert anns anns anns
18. 160	INCREMENT REG	DFN OP A-Z	X	a dagle acces engal eran. cum vient sinte com
18. 162	DECREMENT REG		X	a capp take apro case when short each each some
	O INVERSES - 			o was this was the this and also this like
18.3	INV OP O	party space tables parted causes tables (party causes causes causes causes causes causes causes causes causes	X	
18. 6	INV OP 1		X	us annos dictor anigo anigo como gibila fondo cibila cibil
18. 47	INV OP 2		X	FF THESE COURT SHIPS NAME ANGEL COORS COURS (SECO.) COORS
18. 17	INV OP 4		X	
18. 20	INV OP 5		X	as could divine again capet them agent reads and a call
18. 23	INV OP 6		X	ag anga saha anga daga dana sasa Asaa Sasa sasa
18. 26	INV OP 7		X	AS SQUARE SOURCE ASSESS SAUGH SQUARE STATE SAUGH SAUGH
18. 29	INV OP 8	, along algod comp game along delse came along their along data allah tilan data came	X	

ALEX MAST	ER SPEED LIST	4/25/1980	11:59:49		PAGE	ii
DEFINED	FUNCTION	KEYSTROKES	ACCEPTABLE	MARGINAL	SLOW	
18. 34	INV OP 10			x		
18. 37	INV OP 11		M comp carps term carps apple game major filter alpes fasse opini.	X	apuso anne apper anno dons enno copia	19900 getins
??. ??	INV OP 12	- MAP MAP MAP CEN		X	1000F 10702 4500 6000 10700 6000 4000 4	
18. 40	INV OP 13			X	most taller gazed creat offers acres doors o	M10 eaca
18. 50	INV OP 16		** Color Color Color (color Color Co	X	toon lifth each read title acon each t	-
18. 84	INV OP 22		N come files come come come come come come come come	X		
18. 87	INV OP 23			X	100 The case case 100 ton con case c	
18. 97	INV OP 24			x		
18. 112	INV OP 29			x		
18. 104	INV OP 32			X		
??. ??	INV OP 33 (LAB			X		
??. ??	INV OP 43			×		
18. 139	INV OP 45			X		
18. 73	INV OP 48			Х		
OP CODES				,		
18. 1	OP DEFINITIONS		er anne ague sona anne engo sono engo sono como divis enem super sinh De anne anne engo sono anne super esta entre como entre como como como como como como	X		
18. 4	SET DEFAULTS	OP 1		X		
18. 45	ERROR MESSAGE#	OP 2		x		
18. 11	MEM PARTITION	OP 3	D (2015 CALOR FOUN 2015 CALOR SIGN) SIGN) SIGN SIGN SIGN SIGN SIGN SIGN SIGN SIGN		X	
18. 13	DEFAULT PART.	INV OP 3	to diam dopen month spans along more over the cold with other many deem		X	1200 01110
	ALL CUE PROMPT	OP 4	ns access Gayari finans name seggs sport, month month stiffin aftern event stiffin	X	anged apply goods anner three based cause	****g
	YES/NO CUE			X	Sauce online and Asset office plays access	1000 CH19
18. 21	ENT/CONT CUE	OP 6	to creat cases tooks ducto cases from alono rings 100% states creat 100m.	X		ene ere
	CONT CUE	OP 7	to appe made their spirit days along good made throu close made throu	x	agage allifu worst spine affect street	····
	OCTAL MODE	OP 8	ng gano akua 1886, atun 1884 1886 1886 1886 1886 1886 1886 1886	X		****
18. 30	RECALL ALPHA			X		

ALEX MAST	ER SPEED LIST	4/25/1	1980	11: 59: 49		PAGE	12
DEFINED	FUNCTION	KEYSTRO	OKES	ACCEPTABLE	MARGINAL	SLOW	
21 21 21 21 22 22 22 22 22 22 22 22 22 2	=======================================		R 56 58 58 58 58 58 58	# # # # # # # # # # # # # # # # # # #		Shall draw street stree	== ==
*18. 32 **	DECIMAL MODE	OP 10	and before excells elicine forthe ellule insuce officer	100 - 100 -	X	etale com quip com alles alles dipa	****
18. 35	PRIMARY MODULE#	OP 11	ap 2016 aces (map 1016 aces 1016 aces	alarin sanah alirin yangi annar terda anyar annar alirin anna anyar alirin	X	1014 ANN ANN 1073 THE GLOV GLOV	A100 A100
??. ??	ANGLE MODE: DEG	OP 12	ner mann galer mann same enem enem enem	were twee thin and days file only open thin any other office.	X	easer Prilite parts toron withe cross engage	
18. 38	ROUND DISPLAY	OP 13	# WID CON MAD THE WISH THE PARTY.	and once then are show two gam coop was pape the step	X	outs tolk and but fitte one was	atte aquer
18. 41	SAVE STATUS	OP 14		anna read liftig and outs outs outs copie from man east office	X	these deliver person states where where	
18. 43	EXCHANGE STATUS	INV OP	14	differ report within curve course below agains course below service account.	X	anno conto pigna copor Calla possa verse i	1000 00000
18. 155	->SHIFT ALPHA->	OP 15	a) oliga oliga oliga oliga oliga oliga oliga	etter mad ellin teen jour ette ette teen teen jour elle e	X		1000 CO-000
18. 157	C-SHIFT ALPHAC-	INV OP	15	alpar from their color accordance create color color color accordance accorda	X	ARRIVE STATES COLORS COLORS STATES (
*18. 48 **	HEX MODE	OP 16	us distag galaw adapas educa enter decesi untuk		Х	engs sens again total clone come (
*18.51 **	IMPLIED MULT	OP 17	ga talita, galejo agagy ianna ambili Jungs mann	AND AND SOME SOME SHAPE SHAPE SOME SOME SOME SOME SOME SOME SOME SOM	X	OPPOSE PORTO GOVER ROLLY OUTER GOVER SALAN C	
*18.53 **	DEACTIVAT I.M.	INV OP	17	pada bayan hiikin dalan dalan hiikin orala epiko etaka apeur enkon etika u	X	DISAN SAME ACCOUNTY COME COME COME COME	
*18.55 **	D->R CONVERSION	OP 18			X	magan situs gagin mana idala gapa daga d	
*18. 57 **	R->D CONVERSION	INV OP	18	anns anns tills som tons till tills ofter sold tills ofter fills	X	and the city such the play pack (***************************************
*18. 59 **	R->G CONVERSION	OP 19	er stille anne anne riide even aven delle	enga atapi titoa man inapi silim ajao anna titika anna man titika .	х	must calle onto dues films acces eace t	****
*18.61 **	G->R CONVERSION	INV OP	19		X	ateria Albita giuna, ndust Albita albita stanti i	
*18.63 **	G->D CONVERSION	OP 20	ی دانده و در		х	enggo dellas adors engar Peter enga ontre i	
*18.65 **	D->G CONVERSION	INV OP	20	ness ever tille side sign film side egal tille den som film	X		1000 00000
18. 154	SELF TEST 1	OP 21			X	Mar 1880 Ann 1991 1995 1995 1	1000 osemi
18. 154	SELF TEST 2	INV OP	21		X	Same State and and Albert end come	PODE OSSERS
*18.82 **	CLR STATISTICS	OP 22		SALES SALES STATE CAND COME COME SALES VISING COME COME COME COME	X	aggan belling annen anten bilans aguris brette t	
*18.85 **	INTERCEPT-SLOPE	OP 23			X	ABOUR ACTES COCCO TOMOS OFFICE ACCESS ACCESS TO	Ma 4444
*18. 95 **	CORRELAT. COEFF	OP 24		many anno string come senso when about strine child forms office.	х	augus cotto gener quese tanne conti servir i	
*18. 98 **	Y = MX + B	OP 25		AND MANY THEM HAVE AND THEM THEM THEM THEM THEM THEM	Х	passis sports access access spoats opens design	

*18.100 ** X = (Y-B)/M INV OP 25

*18.88 ** MEANS

*??. ?? ** STD ERR MEAN

*18.91 ** SAMPLE ST DEV

OP 26

OP 27

INV OP 26

X

X

			4.								
	ALEX MA	ASTER SPEED LIST	4/25	/1980		11:59	7: 49		İ	PAGE	13
	DEFINE	FUNCTION	KEYST	ROKES		ACCEF	TABLE	MARGIN	IAL S	LOW	

_) +	*18. 93 *	** POPUL ST DEV	INV OF	27				X			PS 4440
4	*17. 68 *	** ABSOLUTE VAL	OP 28					X			
4	*17.69 *	** SIGNUM FUNCT	INV OF	28				Х			
	18. 109	SHOW FLAGS SET	OP 29					Х			
	18. 78	24 HOUR TIME	OP 30					Х			
	18. 80	12 HOUR TIME	INV OF	30				X			no deep
	18. 67	PAUSE TIMING	OP 31					Х			
	18. 69	DEFAULT PAUSE	INV OF	31				Х			
	18. 102	LST PGM LABELS	OP 32					Х			
	??????		OP 33		NOTE	: OP	33 NO	LONGER	EXIST	S	
	18. 140	RD CASS MAIN/MOD	OP 34					X			
	18. 142	WR CASS MAIN/MOD	INV OF	34				X			
$\overline{}$	18. 145	RD CASS PGM STEPS	OP 35					Х			
<i>\(\frac{1}{2} \)</i>	18. 147	WR CASS PGM STEPS	INV OF	35				Х			
	18. 149	RD CASS REGISTERS	OP 36					Х			
	18. 152	WR CASS REGISTERS	INV OF	36			b state date which state (1807 w	Х			
	18. 117	DISP->PGM CNTR	OP 37				n wan 45a 115b 115a 115a 115	X			
	18. 119	PGM CNTR->DISP	INV OF	37				X			in a chart
	18. 121	DISP->PGM STEP	OP 38				n and the columb	X			
	18. 123	PGM STEP->DISP	INV OF	38				X	9 Sengil Americ supre script 27500 a		
	18. 125	PGM STEP<->DISP INC	C PC ()P 39				X	a dans diffin need days frills		mile essen
	18. 127	PGM STEP<->DISP DEG	PC :	ואי סו				X	- 20020- 10010 - 11200 - 11200		***
	18. 129	SOFT PARTITION	OP 40					X			

X

X

18.130 HARD PARTITION INV OP 40

*18.115 ** CANCEL UNNORM# INV OP 41

*18.113 ** UNNORMALIZED # OP 41

??.??? I/O BUFFER->I/O OP 42

ALE	X MAS	TER SPEED LIST	4/25/	1980	11:59:49		PAGE	14
DEF	INED	FUNCTION	KEYSTR	DKES	ACCEPTABLE	MARGINAL	SLOW	
				nam adject glend areas areas option stones topics in	and these states states driven tables states show the case positio states states	apana anatu aliigo anata atuun aroos enton angus aluju guana.	AND DES SON CON DOS SINO CON	243 12 4
??.	???	I/O->I/O BUFFER	INV OP	42		X		
??.	???	SHOW 13 DIGITS	OP 43			X		
18.	133	SET ALARM	OP 44			X		
18.	135	RESET ALARM	INV OP	44		X		
18.	138	PAU TIMING TONE	OP 45			X		
??.	???	ERROR TONE	OP 46			X		
??.	???	CUE TONE	OP 47			X		
18.	71	COPY CRAM	OP 48			X		
18.	74	NAME CRAM	OP 49			X		
18.	76	ERASE MODULE	INV OP	49		X		
18.	105 I	ELIMINATE PC DISP	OP 50			Х		
18.	107	RESTORE PC DISP	INV OP	50		X		
*18.	159**	INCREMENT REG	OP A-Z			Х		alice suom
*18.	161**	DECREMENT REG	INV OP	A-Z		X		

^{*&#}x27;S INDICATE OP CODES WHICH ARE ALSO LISTED UNDER OTHER CATEGORIES

303 FUNCTIONS LISTED 106 ACCEPTABLE FUNCTIONS 193 MARGINAL FUNCTIONS 4 SLOW FUNCTIONS ********* ALEX SPEED CHECKOUT 05/21/80 15: 25: 42 PAGE

DATE AVERAGE TIME

DATE AVERAGE TIME CHECKED REQUIRED (SEC) DEFINED FUNCTION KEYSTROKES *************

STATISTICAL FUNCTIONS NOTE: DO OP 10 TO MAKE SURE THE SIMULATOR COMM ANNO STORE STATE ST IS IN DECIMAL MODE FOR STAT. FUNCT.

17. 4	SIGMA+	2ND SIGMA+	5/6/80	3. 5
	SIGMA-			
18. 82	CLR STAT	OP 22	5/6/80	6. 3
18. 85	LIN REGR	OP 23		
18. 88	MEANS	OP 26		4. 95
	STD ERR MEAN			
	SAM STD DEV			9. 05
	POP STD DEV	INV OP 27	5/6/80	
18. 95	CORR COEF		5/6/80	
	Y' =	OP 25	5/6/80	
18. 100				

"MATH" FUNCTIONS

17. 71	PI	PI SYMBOL	5/6/80	NEGLIGIBLE
17. 69	SIGNUM	INV OP 28	5/6/80	5. 1
17. 19	FACTORIAL	2ND ()!	5/6/80	RANGE: 2.5-18.4
17. 18	INVERSE	() -1	5/6/80	< . 5
17. 36	SQ ROOT	2ND ROOT SIGN	5/6/80	< . 6
17. 35	INT POWER	()N	5/6/80	< .7 MAX
17. 38	LOG X	2ND LOG	5/6/80	< .7
17. 39	ANTILOG X	INV 2ND LOG	5/6/80	< .7
17. 41	LN X	2ND LN	5/7/80	< .6
17. 42	E**X	INV 2ND LN	5/7/80	< .6
17. 37	RAISE POWER	UP ARROW	5/7/80	< .6
17. 40	END SUPERSCRIPT	DOWN ARROW	5/7/80	< .6

17. 59	DIVISION	DIV SYMBOL	5/7/80	< . 6
17. 70	MULTIPLY	X	5/7/80	< . 5
18. 51	IMPLIED MULT	OP 17	5/7/80	< . 55
18. 53	DEACTIVATE I.M.	INV OP 17	5/7/80	4. 05
17. 83	SUBTRACTION		5/7/80	< . 5
17. 96	ADDITION	+	5/7/80	< . 5
17. 114	EQUALS	=	5/7/80	NEGLIGIBLE
17. 97	cos	2ND COS	5/7/80	< . 53
17. 98	ARCCOS	INV 2ND COS	5/7/80	< .6
17. 115	SIN	2ND SIN	5/7/80	< . 58
17. 116	ARCSIN	INV 2ND SIN	5/7/80	< . 63
17. 84	TAN	2ND TAN	5/7/80	< . 475
17. 85	ARCTAN	INV 2ND TAN	5/7/80	< .6
17. 68	ABS VALUE	OP 28	5/7/80	4. 5
17. 110	UNARY MINUS	I - I	5/7/80	. 6
17. 111	SIGN CHANGE	2ND +/-	5/7/80	< .35

CONVERSIONS

17. 7	P>R	2ND P>R	5/7/80	2. 5
17. 8	R>P	INV 2ND P>R	5/7/80	2. 26
17. 51	ENG UNITS	2ND ENG	5/7/80	< . 4
17. 52	CLEAR ENG	INV 2ND ENG	5/7/80	< . 5
17. 49	ENTER EXPONENT	EE	5/7/80	< .35
17. 50	CLEAR EE	INV EE	5/7/80	< . 4
17. 54	FIX DEC PT	2ND FIX	5/7/80	5. 0
17. 55	CLEAR FIX	INV 2ND FIX	5/7/80	4. 75
17. 57	DISPLAY INTEGER	2ND INT	5/7/80	< .33

17. 58	DISPLAY FRACT	INV 2ND INT	5/7/80	< . 34
17. 81	DMS TO DEC DEG	2ND DMS	5/7/80	2. 37
17. 82	DEC DEG TO DMS	INV 2ND DMS	5/7/80	2. 37
18. 28	OCTAL MODE	OP 8	5/14/80	BASE 10: 11.53-11.8 BASE 16: 16.67-17.67
18. 32	DECIMAL MODE	OP 10	5/14/80	BASE 8: 4.53-6.97 BASE 16: 5.67-7.37
18. 48	HEX MODE	OP 16	5/14/80	BASE 8: 13.1-15.73 BASE 10: 11.03-11.1
18. 55	DEG> RAD	OP 18	5/8/80	4. 13
18. 57	RAD> DEG	INV OP 18	5/8/80	4. 1
18. 59	RAD> GRAD	OP 19	5/8/80	4. 2
18. 61	GRAD> RAD	INV OP 19	5/8/80	4. 2
18. 63	GRAD> DEG	OP 20	5/8/80	4. 07
18. 65	DEG> GRAD	INV 0P 20	5/8/80	4. 1
18. 113	UNNORMALIZED #	OP 41	5/8/80	5. 6
18. 115	RESTORE NORMAL#	INV OP 41	5/8/80	5. 6
17. 60	TRIG ANGLE MODE	2ND DRG	5/8/80	1. 7
17. 61	DEGREE MODE	INV 2ND DRG	5/8/80	1.4

PROGRAMMING MODES

17. 1	EQUATION MODE	EQN	5/8/80	NEGLIGIBLE
17. 3	EVALUATE EQN	EVAL	5/16/80	<.5 MINIMUM
17. 2	LEARN MODE	LRN	5/8/80	NEGLIGIBLE
17. 62	SINGLE STEP	>	5/8/80	NEGLIGIBLE
17. 63	CURSOR RIGHT	ALPH>	5/12/80	NEGLIGIBLE
17. 72	BACK STEP	<	5/8/80	NEGLIGIBLE

17. 73	CURSOR LEFT	ALPH <	5/12/80	NEGLIGIBLE
17. 64	INSERT	2ND INS	5/8/80	3. 2
17. 74	DELETE	SND DEF	5/8/80	6. 47
17. 31	SUBROUTINE	SBR	5/19/80	<.3 (WITH R/S)
17. 32	RETURN	INV SBR	5/19/80	<.3 (WITH SBR)
17. 33	LABELED SBR	2ND LBL SBR	5/19/80	<.3 (WITH SBR)
17. 34	LABEL	SND FBF	5/19/80	SEE INDIVIDUAL USES
17. 45	GO ТО	GTO	5/15/80	NEGLIGIBLE
17. 46	GO TO LABEL	GTO 2ND LBL	5/19/80	/ C. 2
17. 47	GO FORWARD REL	2ND GFR	5/19/80	<. 2
17. 48	GO BACKWARD REL	INV 2ND GFR	5/19/80	<. 4
17. 65	INDIRECT FIELD	SND IND	5/20/80	USES NO EXTRA TIME
17. 75	IF >	2ND IF >	5/16/80	<. 3
17. 76	IF <	INV 2ND IF >	5/16/80	<. 3
17. 77	IF >=	2NDIF> 2NDIF=	5/16/80	<. 3
17. 78	IF <= INV	2NDIF>2NDIF=	5/16/80	<. 3
17. 79	IF =	2ND IF =	5/16/80	<. 3
17. 80	IF NOT =	INV 2ND IF =	5/16/80	<. 3
17. 86	RUN/STOP	R/S	5/16/80	NEGLIGIBLE
17. 88		2ND RST		NEGLIGIBLE
17. 89	FLIP FLAG		5/16/80	NEGLIGIBLE
	IF FLAG		5/19/80	NEGLIGIBLE
17. 91	INV IF FLAG			NEGLIGIBLE
	SET FLAG			NEGLIGIBLE
17. 93	INV SET FLAG	INV 2ND STF	5/19/80	NEGLIGIBLE
17. 94	DECR & SKIP O	2ND DSZ	5/19/80	<. 093
17. 95	INV DSZ			
17. 112	PAUSE	2ND PAU		

ALEX SPEED CHECKOUT 05/21/80 15: 25: 42 PAGE 5 DATE AVERAGE TIME CHECKED DEFINED FUNCTION KEYSTROKES REQUIRED (SEC) 17. 11 NOP 2ND NOP 5/16/80 0.007 FUNCTIONS NOT AVAILABLE ON KEYBOARD (MAY BE GENERATED IN PROGRAM) AND ADDRESS AND AD SET BIT CODE AO 5/20/80 ?RBIT RESET BIT CODE A1 5/20/80 . 1 ?FBIT FLIP BIT CODE A2 5/20/80 ?TBIT TEST BIT CODE A3 5/20/80 ?INV TBIT TST&SKIP IF SET INV CODE A3 5/20/80 ?STOD STO A DIGIT CODE A4 5/20/80 RECALL A DIGIT CODE A5 ?RCLD 5/20/80 ?HIER SET HIER REGIS. CODE A6 5/19/80 NEGLIGIBLE ?INVHIER RESET TO USER REG INV CODE A6 5/19/80 NEGLIGIBLE . 05 INDIR HIER REG CODE A7 5/20/80 ?INV INDH RESET IND HIER REG INV CODE A7 5/20/80 ?RCLH RECALL HIER REG CODE A8 5/20/80 5/20/80 . 37 ?STOH STORE HIER REG CODE A9 MEMORY __________

17. 6	SWAP DISP-AUX	<=>	5/14/80	NEGLIGIBLE
17. 9	INCREMENT REG	OP A-Z	5/14/80	1. 1
17. 10	DECREMENT REG	INV OP A-Z	5/14/80	1. 1
17. 15	RECALL VAR	2ND DFN RCL V	5/19/80	11. 4
17. 20	STORE	STO	5/14/80	NEGLIGIBLE
17. 21	CLR MEMORIES	2ND CMS	5/14/80	5. 63 SEC + 1SEC/6 REG

	D CHECKOUT C		: 25: 42 DATE	
DEFINED	FUNCTION ********			REQUIRED (SEC) ******************
17. 22	CLR PROGRAM	INV 2ND CMS	5/14/80	6. 7
17. 23	RECALL	RCL	5/14/80	NEGLIGIBLE
17. 25	STORE +	STO +	5/14/80	NEGLIGIBLE
17. 26	STORE -	STO -	5/14/80	< . 5
17. 27	STORE X	sто х	5/14/80	< . 5
17. 28	STORE /	STO /	5/14/80	< . 5
17. 29	EXCHANGE	SND EXC	5/14/80	. 75
17. 99	CLEAR ENTRY	CE/CLR	5/14/80	NEGLIGIBLE
17. 100	CLR EQUATION	2ND CEQ	5/14/80	NEGLIGIBLE
17. 101	GENERAL CLEAR	CE/CLR CE/CLR	5/14/80	NEGLIGIBLE
17. 102	LST PGM MEMORY	2ND LST	5/20/80	.11/PGM STEP
17. 104	LST REGISTERS	INV 2ND LST	5/20/80	. 41/REGISTER
		(HIER)INV2NDLST E FROM A PROGRAM	5/20/80	. 43/REGISTER

PERIPHERALS

17. 13	PROGRAM	PGM MMNN	5/21/80	NEGLIGIBLE
17. 108	PRINT DISPLAY	2ND PRT		
17. 109	ADVANCE PAPER	INV 2ND PRT		
17. 66	DOWNL CRAM/CROM	2ND READ	5/21/80	74.37SEC + .23SEC/STEP
17. 67	WRITE TO CRAM	INV 2ND READ	5/21/80	25.5SEC + .327SEC/STEP

MISCELLANEOUS

	ting their prince many divine tonic and their many days over many and and their care and a			
17. 12	2ND FUNCTION	2ND	5/12/80	NEGLIGIBLE
17. 30	INVERSE FUNCT	INV	5/12/80	NEGLIGIBLE
17. 14	DEFINE	DFN	5/12/80	NEGLIGIBLE

17. 16	DEFINE OP	2ND DFN OP NN	5/12/80	SEE INDIVIDUAL OP
17. 17	DEFINE INV OP	2NDDFNINVOP NN	5/12/80	SEE INDIVIDUAL OP
17. 24	RECALL DATE T	ME DATE SWITCH	5/13/80	6. 02
17. 118	ON/TIME/PROMPT			
17. 43	ALPHA STATE 1	ALPH	5/12/80	NEGLIGIBLE
17. 44	ALPHA STATE 2	2ND ALPH	5/12/80	NEGLIGIBLE
17. 113	ALPHA SHIFT	SHIFT KEY ALPH	5/12/80	NEGLIGIBLE
17. 117	FORMAT ALPH #	ALPHA	5/12/80	. 4
17. 53	LEFT PAREN	(5/12/80	NEGLIGIBLE
17. 56	RIGHT PAREN	>	5/12/80	NEGLIGIBLE
17. 106	NUMERALS	0-9	5/12/80	NEGLIGIBLE
17. 107	DECIMAL PT		5/12/80	NEGLIGIBLE

DEFINE OP CODES

18. 2	OP DEFINITIONS	DFN OP O	5/15/80	1. 47
18. 5	SET DEFAULTS	DFN OP 1	5/15/80	1. 43
18. 46	ERROR MESSAGE#	DFN OP 2	5/15/80	1. 5
18. 12	MEM PARTITION	DFN OP 3	5/15/80	7. 8
18. 14	DEFAULT PART.	DFN INV OP 3	5/20/80	6. 83
18. 16	ALL CUE PROMPT	DFN OP 4	5/15/80	3. 38
18. 19	YES/NO CUE	DFN OP 5	5/15/80	3. 42
18. 22	ENT/CONT CUE	DFN OP 6	5/15/80	3. 33
18. 25	CONT CUE	DFN OP 7	5/15/80	3. 32
18. 28	OCTAL MODE	DFN OP 8	5/15/80	6. 6
18. 31	RECALL ALPHA	DFN OP 9	5/15/80	2. 0
18. 31	RECALL ALPHA	DFN INV OP 9	5/15/80	1. 87

18. 33	DECIMAL MODE	DFN	OP 10		5/15/80	6. 7
18. 36	PRIMARY MODULE#	DFN	OP 11		5/15/80	2. 07
??. ??	ANGLE MODE:	DFN	OP 12		5/15/80	5. 55
18. 39	ROUND DISPLAY	DFN	OP 13		5/15/80	2. 03
18. 42	SAVE STATUS	DFN	OP 14		5/15/80	2. 03
18. 44	EXCHANGE STATUS	DFN	INV OP	14	5/15/80	2. 08
18. 156	->SHIFT ALPHA->	DFN	OP 15		5/15/80	2. 03
18. 158	<-SHIFT ALPHA<-	DFN	INV OP	15	5/15/80	1.8
18. 49	HEX MODE	DFN	OP 16		5/15/80	6. 97
18. 52	IMPLIED MULT	DFN	OP 17		5/15/80	2. 5
18. 54	DEACTIVAT I.M.	DFN	INV OP	17	5/15/80	9. 66
18. 56	D->R CONVERSION	DFN	OP 18		5/15/80	4. 0
18. 58	R->D CONVERSION	DFN	INV OP	18	5/15/80	4. 05
18. 60	R->G CONVERSION	DFN	OP 19		5/15/80	4. 0
18. 62	G->R CONVERSION	DFN	INV OP	19	5/15/80	4. 05
18. 64	G->D CONVERSION	DFN	OP 20		5/15/80	4. 0
18. 66	D->G CONVERSION	DFN	INV OP	20	5/15/80	4. 2
18. 154	SELF TEST 1	DFN	OP 21		5/15/80	2. 4
18. 154	SELF TEST 2	DFN	INV OP	21	5/15/80	2. 6
18. 83	CLR STATISTICS	DFN	OP 22		5/15/80	2. 5
18. 86	INTERCEPT-SLOPE	DFN	OP 23		5/15/80	2. 6
18. 96	CORRELAT. COEFF	DFN	OP 24		5/15/80	2. 55
18. 99	A = WX + B	DFN	OP 25		5/15/80	2. 55
18. 101	X = (Y-B)/M	DFN	INV OP	25	5/15/80	2. 7
18. 89	XBAR =	DFN	OP 26		5/15/80	2. 65
??. ??	STD ERR MEAN	DFN	INV OP	26	5/15/80	2. 73
18. 92	SAMPLE ST DEV	DFN	OP 27		5/15/80	2. 7

**********	******	*****	*****
ALEX SPEED CHECKOUT	05/21/80	15: 25: 42	PAGE 9
		DATE	AVERAGE TIME
DEFINED FUNCTION	KEYSTROKES	CHECKED	REQUIRED (SEC)
******	*****	*****	****

18. 94	POPUL ST DEV DF	N INV OP 27	5/15/80	2. 8
17. 68	ABSOLUTE VAL DFI	N OP 28	5/15/80	2. 7
17. 69	SIGNUM FUNCT DF	N INV OP 28	5/15/80	2. 8
18. 111	SHOW FLAGS SET DFI	V OP 29	5/15/80	2. 75
18. 79	24 HOUR TIME DF	V OP 30	5/15/80	9. 23
18. 81	12 HOUR TIME DF	N INV OP 30	5/15/80	9. 3
18. 68	PAUSE TIMING DF	N OP 31	5/15/80	3. 3
18. 70	DEFAULT PAUSE DF	N INV OP 31	5/15/80	2. 9
18. 103	LST PGM LABELS DF	N OP 32	5/15/80	3. 0
??????	RD CASS MAIN DF	N OP 33	5/15/80	3. 0
??????	WR CASS MAIN DF	N INV OP 33	5/15/80	3. 25
18. 141	RD CASS MOD DFN	N OP 34	5/15/80	3. 3
18. 143	WR CASS MOD DF	N INV OP 34	5/15/80	3. 2
18. 146	RD CASS PGM STEPS DF	N OP 35	5/15/80	3. 2
18. 148	WR CASS PGM STEPS DFM	N INV OP 35	5/15/80	3. 25
18. 151	RD CASS REGISTERS DF	N OP 36	5/15/80	3. 15
18. 153	WR CASS REGISTERS DF	N INV OP 36	5/15/80	3. 37
18. 118	DISP->PGM CNTR DFM	N OP 37	5/15/80	3. 4
18. 120	PGM CNTR->DISP DFN	INV OP 37	5/15/80	3. 35
18. 122	DISP->PGM STEP DFM	N OP 38	5/15/80	3. 55
18. 124	PGM STEP->DISP DFN	1 INV OP 38	5/15/80	3. 8
18. 126	PGM STEP<->DISP INC PO	DFN OP 39	5/15/80	5. 7
18. 128	PGM STEP<->DISP DEC PO	DFNINVOP39	5/15/80	5. 8
18. 131	SOFT PARTITION DEN	N OP 40	5/15/80	8. 2
18. 132	HARD PARTITION DFN			8. 4
18. 114				8. 3
18. 116		N INV OP 41	5/15/80	8. 5
?. ???	I/O BUFFER->I/O DFN	N OP 42	5/15/80	3. 5
	17. 68 17. 69 18. 111 18. 79 18. 81 18. 68 18. 70 18. 103 ?????? ?????? 18. 141 18. 143 18. 144 18. 145 18. 151 18. 153 18. 151 18. 153 18. 124 18. 122 18. 124 18. 124 18. 124 18. 124 18. 124 18. 124	17. 68 ABSOLUTE VAL DFI 17. 69 SIGNUM FUNCT DFI 18. 111 SHOW FLAGS SET DFI 18. 79 24 HOUR TIME DFI 18. 81 12 HOUR TIME DFI 18. 68 PAUSE TIMING DFI 18. 103 LST PGM LABELS DFI 18. 103 LST PGM LABELS DFI 18. 141 RD CASS MAIN DFI 18. 142 WR CASS MOD DFI 18. 143 WR CASS MOD DFI 18. 144 RD CASS PGM STEPS DFI 18. 145 RD CASS PGM STEPS DFI 18. 146 RD CASS REGISTERS DFI 18. 151 RD CASS REGISTERS DFI 18. 153 WR CASS REGISTERS DFI 18. 154 PGM CNTR—>DFI 18. 124 PGM STEP—>DFI 18. 124 PGM STEP—>DISP DFI 18. 125 PGM STEP< 18. 126 PGM STEP< THE PORT OF TH	17. 68 ABSOLUTE VAL DFN OP 28 17. 69 SIGNUM FUNCT DFN INV OP 28 18. 111 SHOW FLAGS SET DFN OP 29 18. 79 24 HOUR TIME DFN OP 30 18. 81 12 HOUR TIME DFN INV OP 30 18. 68 PAUSE TIMING DFN OP 31 18. 70 DEFAULT PAUSE DFN INV OP 31 18. 103 LST PGM LABELS DFN OP 32 ?????? RD CASS MAIN DFN OP 33 ?????? WR CASS MAIN DFN INV OP 33 18. 141 RD CASS MOD DFN INV OP 34 18. 143 WR CASS MOD DFN INV OP 34 18. 144 RD CASS PGM STEPS DFN OP 35 18. 148 WR CASS PGM STEPS DFN INV OP 35 18. 151 RD CASS REGISTERS DFN OP 36 18. 153 WR CASS REGISTERS DFN INV OP 36 18. 150 PGM CNTR DFN OP 37 18. 120 PGM CNTR DFN OP 37 18. 122 DISP->PGM STEP DFN INV OP 37 18. 124 PGM STEP->DISP DFN INV OP 38 18. 124 PGM STEP->DISP DFN INV OP 39 18. 128 PGM STEP<->DISP DFN OP 39 18. 129 PGM STEP<->DISP DFN OP 39 18. 120 PGM STEP<->DISP DFN OP 39 18. 121 SOFT PARTITION DFN OP 40 18. 132 HARD PARTITION DFN OP 41 18. 114 UNNORMALIZED # DFN OP 41	17. 68 ABSOLUTE VAL DFN OP 28 5/15/80 17. 69 SIGNUM FUNCT DFN INV OP 28 5/15/80 18. 111 SHOW FLAGS SET DFN OP 29 5/15/80 18. 79 24 HOUR TIME DFN OP 30 5/15/80 18. 81 12 HOUR TIME DFN INV OP 30 5/15/80 18. 81 12 HOUR TIME DFN INV OP 30 5/15/80 18. 70 DEFAULT PAUSE DFN INV OP 31 5/15/80 18. 103 LST PGM LABELS DFN OP 32 5/15/80 ?????? RD CASS MAIN DFN OP 33 5/15/80 ?????? WR CASS MAIN DFN INV OP 33 5/15/80 18. 141 RD CASS MOD DFN OP 34 5/15/80 18. 142 WR CASS MOD DFN INV OP 34 5/15/80 18. 143 WR CASS MOD DFN INV OP 34 5/15/80 18. 144 RD CASS PGM STEPS DFN OP 35 5/15/80 18. 148 WR CASS PGM STEPS DFN INV OP 35 5/15/80 18. 148 WR CASS REGISTERS DFN OP 36 5/15/80 18. 151 RD CASS REGISTERS DFN INV OP 36 5/15/80 18. 152 DISP->PGM CNTR DFN OP 37 5/15/80 18. 120 PGM CNTR->DISP DFN INV OP 38 5/15/80 18. 124 PGM STEP->DISP DFN INV OP 38 5/15/80 18. 125 PGM STEP->DISP DFN INV OP 38 5/15/80 18. 126 PGM STEP->DISP DFN INV OP 39 5/15/80 18. 128 PGM STEP->DISP DEC PC DFN INVOP39 5/15/80 18. 131 SOFT PARTITION DFN OP 40 5/15/80 18. 132 HARD PARTITION DFN INV OP 40 5/15/80

?. ???	I/O->I/O BUFFER	DFN	INV OP	42	5/15/80	3. 65
??. ???	SHOW 13 DIGITS	DFN	OP 43		5/15/80	3. 55
18. 134	SET ALARM	DFN	OP 44		5/15/80	6. 35
18. 136	RESET ALARM	DFN	INV OP	44	5/15/80	6. 3
18. 138	PAU TIMING TONE	DFN	OP 45		5/15/80	3. 85
??. ???	ERROR TONE	DFN	OP 46		5/16/80	6. 0
??. ???	CUE TONE	DFN	OP 47		5/16/80	8. 7
??. ???	NO CUE TONE	DFN	INV OP	47	5/16/80	11. 65
18. 72	COPY CRAM	DFN	OP 48		5/16/80	4. 05
18. 75	NAME CRAM	DFN	OP 49		5/16/80	4. 13
18. 77	ERASE MODULE	DFN	INV OP	49	5/16/80	4. 1
18. 106	ELIMINATE PC DISP	DFN	OP 50		5/16/80	9. 05
18. 108	RESTORE PC DISP	DFN	INV OP	50	5/16/80	9. 05
18. 160	INCREMENT REG	DFN	OP A-Z		5/16/80	6. 5 A - 7. 05 Z
18. 162	DECREMENT REG	DFN	INVOP A	4-Z	5/16/80	6.6 A - 6.95 Z
	NOD COLUMN THE COLUMN C					

UNDEFINED INVERSES -

**** ALL OF THESE WORK CORRECTLY ON DFN INV OP ## *****

				7 SEC TO 4.04 SEC	
18. 3	INV	OP O	5/16/80		
18. 6	INV	OP 1	5/16/80		
18. 47	INV	OP 2	5/16/80		
18. 17	INV	OP 4	5/16/80		
18. 20	INV	OP 5	5/16/80		
18. 23	INV	OP 6	5/16/80		
18. 26	INV	OP 7	5/16/80		
18. 29	INV	OP 8		2. 03	

DEFINED	FUNCTION	KEYSTROKES	DATE CHECKED	AVERAGE TIME REQUIRED (SEC)

18. 34	INV OP 10		5/16/80	2. 33
18. 37	INV OP 11		5/16/80	2. 43
??. ??	INV OP 12	0 Cup tan tan ass ass ass ass ass bib to ass ass and a	5/16/80	2. 6
18. 40	INV OP 13	0 (pp. 110) 100 (pp. 110) 110) 110 (pp. 110) 110) 110) 110) 110) 110) 110) 110	5/16/80	2. 68
18. 50	INV OP 16	0 also mm 1000 page sim 1000 dops side from 1500 size (fire fire) size (5/16/80	3. 27
18. 84	INV OP 22	n clap care com aque esta mon anno esta sero capa como tamo samo anno	5/16/80	3. 9
18. 87	INV OP 23		5/16/80	3. 97
18. 97	INV OP 24		5/16/80	4. 07
18. 112	INV OP 29		5/16/80	4. 27
18. 104	INV OP 32	n dage anno vitti saga anno unan dage dino dino dasa cala timi sage el	5/16/80	4. 7
??. ??	INV OP 43		5/16/80	5. 23
18. 139	INV OP 45	o cape take title only man fine days title title cape and and a	5/16/80	5. 47
18. 73	INV OP 48	- 1100 and 1101 and 100 and 10	5/16/80	5. 43
OP CODES				
18. 1	OP DEFINITIONS	OP O	5/9/80	8:35.3 MIN TOTAL
18. 4	SET DEFAULTS	OP 1	5/8/80	7. 1
18. 45	ERROR MESSAGE#		5/9/80	2. 9
18. 11	MEM PARTITION			12. 6
18. 13	DEFAULT PART.			15. 0
18. 15	ALL CUE PROMPT	OP 4		9. 65
18. 18	YES/NO CUE		5/20/80	9. 2
18. 21	ENT/CONT CUE	OP 6		9. 05
18. 24	CONT CUE			9. 13
			5/14/80	BASE 10: 11.53-11.8 BASE 16: 16.67-17.67
	RECALL ALPHA	OP 9	5/13/80	

ALEX SPEED CHECKOUT 05/21/80 15:25:42 PAGE 12
DATE AVERAGE TIME
DEFINED FUNCTION KEYSTROKES CHECKED REQUIRED (SEC)

ā				
*18. 32 **	DECIMAL MODE	OP 10	5/14/80	BASE 8: 4.53-6.97 BASE 16: 5.67-7.37
18. 35	PRIMARY MODULE#	OP 11	5/14/80	4. 3
??. ??	ANGLE MODE: DEG	OP 12	5/13/80	5. 45
18. 38	ROUND DISPLAY	OP 13	5/13/80	3. 02
18. 41	SAVE STATUS	OP 14	5/14/80	8. 25
18. 43	EXCHANGE STATUS	INV OP 14	5/20/80	44. 77
18. 155	->SHIFT ALPHA->	OP 15	5/14/80	19. 67
18. 157	<-SHIFT ALPHA<-	INV OP 15	5/14/80	19. 78
*18.48 **	HEX MODE	OP 16	5/14/80	BASE 8: 13.1-15.73 BASE 10: 11.03-11.1
*18.51 **	IMPLIED MULT	OP 17	5/7/80	<. 55
*18.53 **	DEACTIVAT I.M.	INV OP 17	5/7/80	4. 05
*18. 55 **	D->R CONVERSION	OP 18	5/8/80	4. 13
*18. 57 **	R->D CONVERSION	INV OP 18	5/8/80	4. 1
*18.59 **	R->G CONVERSION	OP 19	5/8/80	4. 2
*18.61 **	G->R CONVERSION	INV OP 19	5/8/80	4. 2
*18.63 **	G->D CONVERSION	OP 20	5/8/80	4. 07
*18.65 **	D->G CONVERSION	INV OP 20	5/8/80	4. 1
18. 154	SELF TEST 1	OP 21	5/14/80	3. 6
18. 154	SELF TEST 2		5/14/80 5/21/80	13.83 (FAIL) 1387.4 (PASS)
*18.82 **	CLR STATISTICS		5/6/80	6. 3
*18.85 **	INTERCEPT-SLOPE	OP 23	5/6/80	10. 55
*18. 95 **	CORRELAT. COEFF	OP 24	5/6/80	7. 75
*18. 98 **	Y = MX + B	OP 25	5/6/80	10. 85
*18. 100 *	* X = (Y-B)/M	INV OP 25	5/6/80	10. 9
*18.88 **	MEANS	OP 26	5/6/80	4. 95
*??. ?? **	STD ERR MEAN	INV OP 26	5/8/80	8. 03

)	*18.91 ** SAMPLE ST DE		5/6/80	9. 05
	*18.93 ** POPUL ST DE		5/6/80	6. 3
	*17.68 ** ABSOLUTE VA	AL OP 28	5/7/80	4. 5
	*17.69 ** SIGNUM FUNC	T INV OP 28	5/6/80	5. 1
	18.109 SHOW FLAGS	SET OP 29	5/14/80	B. O SEC + 2. 1/FLAG
	18.78 24 HOUR TIM		5/14/80	6. 9
	18.80 12 HOUR TIM	1E INV OP 30	5/14/80	7. 23
	18.67 PAUSE TIMIN	G OP 31		4. 8
	18.69 DEFAULT PAU		5/14/80	8. 5
	18. 102 LST PGM LAB	BELS OP 32		
	?????? RD CASS/MAI	N OP 33		
	?????? WR CASS/MAI	N INV OP 33		
7	18.140 RD CASS MOD	OP 34		
	18.142 WR CASS MOD			
	18.145 RD CASS PGM S	STEPS OP 35		
	18.147 WR CASS PGM S	STEPS INV OP 35		
	18.149 RD CASS REGIS	STERS OP 36		
	18.152 WR CASS REGIS	STERS INV OP 36		
	18.117 DISP->PGM C	NTR OP 37	5/14/80	7. 35
	18. 119 PGM CNTR->D	ISP INV OP 37	5/14/80	5. 25
	18.121 DISP->PGM S	TEP OP 38	5/14/80	8. 0
	18.123 PGM STEP->D	ISP INV OP 38	5/14/80	7. 1
	18.125 PGM STEP<->DIS	P INC PC OP 39	5/14/80	12. 2
	18.127 PGM STEP<->DIS	P DEC PC INV DP3	9 5/14/80	11.8
	18.129 SOFT PARTIT	ION OP 40	5/14/80	5. 07
)	18.130 HARD PARTIT	ION INV OP 40	5/14/80	5. 17
	*18.113 ** UNNORMALIZE	D # OP 41	5/8/80	5. 6

		/21/80		: 25: 42	************** PAGE 14 AVERAGE TIME
	FUNCTION			CHECKED	
*18. 115 **	* CANCEL UNNORM#	INV OP	41	5/6/80	5. 6
??. ???	I/O BUFFER->I/O	OP 42			
??. ???	I/O->I/O BUFFER	INV OP	42	MD 400 A10 GM 0100 A10 A10 A10 A10 A10 A10 A10 A10 A1	tion that alone then come price durin come days come film super ratios have come record claim super
??. ???	SHOW 13 DIGITS	OP 43		5/14/80	9. 37
18. 133	SET ALARM	OP 44	a design count opping special before country country or	5/14/80	25.6 (13.05 IF 0)
18. 135		INV OP	44	5/14/80	10. 57
18. 138	PAU TIMING TONE	OP 45		age does note days man have augh vone note ages days note have a	an with run dry two due and eath run dry with day die tall the dry the age
??. ???	ERROR TONE	OP 46			
??. ???		OP 47	e Carlle colum colors derive color steps color el	uais arine arin hune fanns darin eugh neun stein sepa daes darin dath ea	an aith eap ann hait agus eine aith ains ains ann ann ains ains ann ann ann ann ann
18. 71	COPY CRAM	OP 48			
18. 74				5/21/80	44. 1
18. 76	ERASE MODULE	INV OP	49	5/21/80	42. 9
18. 105 E	LIMINATE PC DISP	OP 50		5/14/80	5. 77
18. 107	RESTORE PC DISP	INV OP	50	5/14/80	5. 75
*18. 159**	INCREMENT REG	OP A-Z	- Grant color appeal species advise gallers and	5/14/80	1. 1
*18. 161**	DECREMENT REG	INV OP	A-Z	5/14/80	1. 1

*'S INDICATE OP CODES WHICH ARE ALSO LISTED UNDER OTHER CATEGORIES

289 FUNCTIONS TIMED TO DATE

ALEX SPEED CHECKOUT

FUNCTION

KEYSTROKES

REQUIRED

TIME (SEC) TIME (SEC) REQUIRED TI-59

STATISTICAL FUNCTIONS

TI-88 NOTE: DO OP 10 TO MAKE SURE THE SIMULATOR IS IN DECIMAL MODE FOR STAT. FUNCT.

Oct. 20. 1980

SIGMA+	2ND SIGMA+		
	INV 2ND SIGMA+		1. 1
CLR STAT			1. 267
LIN REGR			1. 3
MEANS	OP 26	1. 075	. 667
STD ERR MEAN			NA '
SAM STD DEV			1. 3
	INV OP 27		
CORR COEF		1. 6	1. 3
Y' =	OP 25		1. 467
X′ =	INV OP 25		1. 5

"MATH" FUNCTIONS

	INVERSE	() -1	. 052	. 0493
\		2ND ROOT SIGN		
	INT POWER		. 074	
	LOG X	2ND LOG	. 31775	. 128
	ANTILOG X	INV 2ND LOG	. 3653	. 1197
and the state of t	LN X	2ND LN	. 27575	. 104
and the time the time one time as	E**X	INV 2ND LN	. 29482	. 1507
	DIVISION	DIV SYMBOL	. 0695	. 0797
	MULTIPLY	х	. 0560	. 064
17. 83	SUBTRACTION	_	. 0295	. 031
17. 96	ADDITION	+	. 027	. 031
17. 97	cos	2ND COS	. 633	. 395
17. 98	ARCCOS	INV SND COS	. 5467	. 252

Oct. 20,1980

17. 115	SIN	2ND SIN	. 583	. 395
17. 116	ARCSIN	INV 2ND SIN	. 5467	. 2412
17. 84	TAN	2ND TAN	. 436	. 2747
17. 85	ARCTAN	INV 2ND TAN	. 3906	. 1487

NOTE: ALTHOUGH THE ACTUAL EXECUTION TIME OF AN INDIVIDUAL FUNCTION ON THE TI-88 MAY BE MORE THAN THE TI-59, THE OVERHEAD OF RUNNING A PROGRAM TO COMPUTE THAT FUNCTION ON THE TI-88 IS FROM 40-50 PERCENT LESS THAN THE TI-59. THIS DIFFERENCE IN OVERHEAD SPEED MEANS THAT COMPARABLE PROGRAMS ON THE TWO CALCULATORS RUN FASTER ON THE 88.

ONBOARD CROM FUNCTION SPEEDS ALICE MYERS

- && NO	&&&&&&&&&& TE: TIMES I	FUNCTION %&&&&&&&&&&&&& N PARENTHISES ARE TH WER THAN THOSE RECOR	&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&	TIME (SEC) JAN 8,1981 &&&&&&&&&
OP	57	DISPLAY TO I/O	. 7	. 4
OP	58	I/O TO DISPLAY	. 7	. 4
OP	09	RECALL ALPHA	. 7	. 6
OP	15	<-SHIFT<-	. 7	. 4
OP	66	PAU TIMING TONE	. 7	. 4
OP	14	->SHIFT->	. 8	. 5
OP	67	ERROR TONE	. 9	. 7
OP	68	NO ERROR TONE	. 9	. 7
OP	69	CUE TONE	. 9	. 7
OP	70	NO CUE TONE	. 9	. 7
		INVERSE FIX	. 9	. 8
, ' ' '		ERROR MESSAGE	. 9 (3. 2)	1. 0
OP	13	ROUND DISPLAY	. 9	. 7
OP	10	ABS VAL	1. 0	. 4
OP	44	SOFT PARTITION	1.0	. 6
OP	45	HARD PARTITION	1.0	. 6
OP	77	ELIMINATE PC DISPLA	Y 1.0	. 7
OP	78	RESTORE PC DISPLAY	1.0	. 7
OP	36	MEANS	1. 1	. 8
OP	42	UNNORMALIZED #	1. 1	. 8
OP	43	CANCEL UNNORM #	1. 1	. 8
OP	65	RESET ALARM	1. 1	. 7
		FIX	1. 1	1. 0
)DF	72	SHOW 13 DIGITS	1. 1	. 4
OF	18	IMPLIED MULT.	1. 2	. 7
OF	19	NO IMPLIED MULT.	1. 2	. 7

OP	22	D->R CONVERSION	1. 2	. 8
OP	23	R->D CONVERSION	1. 2	. 8
OP	24	R->G CONVERSION	1. 2	. 8
- OP	25	G->R CONVERSION	1. 2	. 8
OP	26	G->D CONVERSION	1. 2	. 8
OP	27	D->G CONVERSION	1. 2	. 8
OP	11	SIGNUM FUNCT	1. 2	. 7
		DEG	1.2	. 7
OP	31	CLEAR STATISTICS	1.2	. 8
OP	21	SELF TEST 1	1.3	NOT APPL.
OP	08	ERROR MESSAGE	1.3	1.0
OP	41	PRIMARY MODULE #	1.3	1. 1
OP	33	CORRELATION COEFFICIENT	1.3	1. 1
OP	37	STD ERROR MEAN	1.4	1.0
OP	62	PAUSE TIMING	1.4	1.0
OP	61	DEFAULT PAU TIMING	1.4	1.0
		DRG	1.4	. 8
OP	32	INTERCEPT/SLOPE	1.4	1.0
OP	38	POPUL ST DEV	1. 7	i. i
OP	46	DISP->PGM CTR	1.7	. 7
OP	59	24 HOUR TIME	1.75	1. i
OP	34	Y=MX+B	1.8	1. 1
OP	35	X=(Y-B)/M	1.8	1.2
OP	39	SAMPLE ST DEV	1. 9	1.0
		DMS->DD	1.9 (2.4)	1. 7
OP	01	SET DEFAULTS	1.9 (3.4)	2. 1
OP	04	ALL CUE	1. 9	. 4
OP	12	ANGLE MODE	1. 9	. 8
NP	60	12 HOUR TIME	1. 95	1. i
<u>~</u>		DD->DMS	2.0 (4.3)	2. 6
OP	17	DECIMAL MODE	2. 0	. 7

	OP	05	YES/NO CUE	2. 0	. 4
	OP	06	ENT/CONT CUE	2. 0	. 4
	OP	07	CONT CUE	2. 0	. 4
-	OP	47	PGM STEP->DISPLAY	2. 1	. 4
			RECTANGULAR->POLAR	2. 3	1.4
	OP	48	DISP->PGM STEP	2. 3	. 4
	OP	74	NAME CRAM (RENAME ONLY)	2. 4	1.3
			DATE	2. 5	1.2
			POLAR->RECTANGULAR	2. 5	. 9
			SIGMA+	2. 7	1.5
			TIME	3. 0	1.2
			SIGMA-	3. 2	i. 8
	OP	20	SAVE STATUS	4. 0	1.0
	OP	03	PARTITION	5. 0	2. 9
	OP	02	DEFAULT PARTITION	5. 2	2 . 5 ₍
	OP	73	ERASE MODULE	6. 0	3. 3*
`-	OP	16	HEX MODE	6. 1	. 8
	OP	21	EXCHANGE STATUS	9. 5	1.2
	OP	74	NAME CRAM (FIRST TIME)	14. 0	4.4*
	OP	75	COPY CRAM	31.2	16. 1
	OP	29	SELF TEST 2	394. 0	66. O

* TIME BEFORE THE FIRST PARTITION MESSAGE IS SHOWN.

NOTE: OPS 49-56, OP 64, OP 30 AND OP 21 ARE INTERACTIVE OR HAVE MULTILINE MESSAGES AND WERE NOT TIMED.

FACTORIAL (SMALLEST ARGUMENT)	1. 95	1. 1
FACTORIAL (LARGEST ARGUMENT)	10. 7	10. 0
LIST REGISTERS	15.9/26 REGS OR .7 PER REG	10.4/26 OR .4 PER REG
LIST HIER REGS	33.5/63 REGS OR .53 PER REG	23.7/63 OR .38/REG

OP	40	LIST	PGM LABELS	<1SEC/LBL + START	SAME
OP	71	SHOW	FLAGS SET	3. 5+. 57/FLAG	2.5+.55/FLAG
		READ		10/16 STEPS 111/592 STEPS	6. 5/10 25. 5/592
		WRITE	(NO CHANGE CATALOGUE) (NO CHANGE CATALOGUE)	11.5/16 STEPS 120/900 STEPS	7. 2/16 35. 3/900
		WRITE	(CHANGE CATALOGUE) (CHANGE CATALOGUE)	48.2/16 STEPS 157/900 STEPS	17. 8/16 46/900
		CLEAR	REGISTERS	7. 21+. 085/REG	1. 7
		CLEAR	PGM	6+. 0034/STEP	1. 5

TI-88 SPEED COMPARISONS

TEST PROGRAM	TI-59	TI-88 PRIOR TO JAN. 1981	TI-88 AFTER JAN. 1981	HP-41C
1. UPLOAD 1000 PROGRAM STEPS		77. 4 SEC	49.2 SEC	
2. EXECUTE 100 + KEYS	5.2 SEC (1/X)	4.2 SEC	2.3 SEC	3.2 SEC
3. LBL A 1 + GTL A	145.6MS	94. 3MS	50. 9MS	56. 5MS
4. HP ARTICLE: PV FOR A BOND	38. 5SEC	37 SEC	24.6 SEC	37 SEC
5. LBL A 1 SUM 40 GTO 0002 (HIER)		141.8MS	102.7MS	
6. 69 !		14.7 SEC	10. 1 SEC	
7. UPLOAD 100 PROGRA STEPS 1ST TIME	M	35 SEC	21.7 SEC	
8. DOWNLOAD 1000 PROGRAM STEPS			108 SEC	

ACH

039/639

01/15/81